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The Contribution of Wild Edible Plants to Human Nutrition in the Black Sea Region of Turkey

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ABSTRACT

Wild edible plants are very widespread in Black Sea Region of Turkey and people has been consumed wild edible plants as food and used them for some medicinal purposes due to economical and geographical reasons. In this study, wild edible plants which used as food in Ordu and Samsun cities which have the highest population density in Black Sea Region were investigated. In the study area 52 wild edible plants belonging to 26 families were collected from different localities. The highest species numbers were found for Lamiaceae family (10 species). Lamiaceae is followed by Asteraceae (5 species), Apiaceae and Boraginaceae (4 species), Liliaceae (3 species), Orchidaceae and Polygonaceae (2 species).

Key Words: Edible plants, Ordu, Samsun, Turkey.

INTRODUCTION

Turkey is situated at the junction of three important phytogeographic regions, namely Mediterranean, Irano-Turanian, and Euro-Siberian, each with its own endemic species and natural ecosystems. These include Caucasian mountain mixed temperate rain forests and alpine ecosystems of the North East Black Sea Coast (Davis 1965).

The combination of a moderate climate which is at the junction of sub-tropical and moderate zones, rugged topography, varied geology, and geographic proximity to both Europe and the Near East help account for the uniqueness and complexity of plant life in the northeastern Anatolia region (Turkey). Two parts of Turkey are included in Conservation International's 25 World "biodiversity hotspots". Southern and a small part of northeastern Anatolia are included in the "Mediterranean Basin" and "Caucasus" hotspots, respectively

The plants have been used as food, dye, ornamental and medicinal purposes by people since old-ages. The human population has been increased day by day and as a result of this people has faced with poverty problem. Williams (1993) emphasized the need to preserve new plant resources to broaden the biological diversity in human nutrition. Wild plant species provide minerals, fibre, vitamins and essential fatty acids and enhance taste and colour in diets. Wild edible plants can also be

used to prevent chronic diseases (cardiovascular disease, diabetes) in the general population, as well as diseases due to under nutrition (anemia, stunting) (Green 1992). Many local wild plants have been used as salad and vegetable dishes prepared in traditional recipes in Turkish cuisine (Wetherit, 1992). Ethno botanical studies are becoming more popular throughout the world, and these studies are focused on documenting the traditional uses of plants by native cultures (Ozgen et al 2004).

Isik et al (1995), Bagci (2000), Duran et al (2001) and Dogan et al (2004) has been reported many wild plants have been used as food in Turkey, especially in Black Sea Region. Yildirim et al (2001) determined nutrient values of some widely used wild plants.

MATERIALS AND METHODS

This study was carried out between 2003-2005 years in Ordu and Samsun cities which have high population density in Black Sea Region of Turkey. In addition to this, the region is blessed with a great diversity of wild edible plants and people have been consumed as food and used them for some medicinal purposes due to economical and geographical reasons (Yilmaz and Deveci 2004).

During the study period, we interviewed with local people most of them are middle aged or older. One hundred sixteen people were interviewed in this study. So the preparation and usage ways of wild edible plants for consumption were determined. The species were identified in the laboratory. Taxonomic nomenclature followed that of Davis (1965-1988). 52 wild edible plants belonging to 26 families were collected from different localities around Ordu and Samsun cities between 2003-2005 years.

RESULTS AND DISCUSSION

The botanical families with the highest number of utilized plant species were the Lamiaceae, Asteraceae (5 species) and Apiaceae and Boraginaceae (4 species). These families were followed by Liliaceae (3 species), Orchidaceae and Polygonaceae (2 species). The parts used and method of using of wild edible plant species in the study area are summarized in Table 1.

Falcaria vulgaris, *Arum maculatum*, *Cichorium intybus*, *Capsella bursa-pastoris*, *Chenopodium foliosum*, *Malva neglecta*, *M. sylvestris*, *Polygonum cognatum*, *Rumex tuberosus*, *Anagallis arvensis* and *Urtica urens* are consumed as meal. *P. cognatum* is stewed with rice and onion. Stem, leaf and branches of these species were cooked with oil, onion, ground meat and several spices. *C. foliosum*, *M. neglecta*, *M. sylvestris*, *R. tuberosus*, *P. oleracea*, *A. arvensis* and *U. urens* is consumed considerably high proportion by the local people.

Artemisia absunthium, *Tragopogon buphthalmoides*, *Anchusa azurea*, *Trachystemon orientalis*, *Euphorbia chamaesyce*, *Cucurbita pepo* and *Ornithogalum sigmoideum* are eaten roasted. On the contrary to the other species, *T. buphthalmoides*, *T. orientalis* and *O. sigmoideum* are firstly boiled with egg and corn flour and roasted later. *C. pepo* is consumed with yoghurt after roasting.

The leaves of certain species are used to prepare a traditional Turkish dish called “dolma”. In this case, the broad leaves of plants are wrapped around a stuffing mixture made from rice and minced meat (Simsek et al, 2004). The leaves of *T. orientalis* are scalded firstly and stuffed with a mixture of corn flour, onion and oil. *C. pepo* is stuffed with rice, onion, pepper, pounded wheat and

meat and olive oil is added to this mixture. *Senecio vulgaris, Galega officinalis* and *Silene vulgaris* are stewed with different vegetables like potatoes, carrot or pounded meat. These species are also stuffed with rice and meat.

Amaranthus lividus, Portulaca oleracea, Erodium cicutarium, Fumaria officinalis, Anethum graveolens, Cichorium intybus, and *Oxalis acetosella* are consumed raw as salad. *P. oleracea* is also consumed with yoghurt and garlic. The leaves of *F. officinalis* and *E. cicutarium* and *E. italicum* are mixed with cheese and meat and roasted.

Stem and leaves of *T. orientalis*, stem of *Heracleum platytaenium*, leaves and branches of *F. vulgaris* are pickled and consumed raw or cooked with olive oil.

U. urens and *E. chamaesyce* is consumed as soup. *U. urens* is firstly boiled and later cooked with oil, corn flavour and water.

The leaves of *Cynoglossum oficinale, R. tuberosus* and *T. buphthalmoides*, stem of *H. platytaenium*, fruits of *Sambucus nigra* and stem and leaves of *C. foliosum* are consumed raw.

The fruits of *Rhus coriaria*, the leaves of *Mentha longifolia* and above ground parts of *Satureja spicigera* are dried, grinded and used to make flavour and scent.

Several plants can be used for other purposes. For example, the leaves of *Salvia spicigera* and other *Salvia* species are scalded with boiling water and consumed for refreshment. Young tubers of *Orchis anatolica* and *Serapias vomaracea* are dried and grinded and poured with boiling water and usually mixed with milk and this mixture is called “sahlep”.

According to the results of that study wild edible plants have been widely consumed in Samsun and Ordu cities and fortunately ethnobotanical knowledge are still alive like other parts of Turkey (Simsek et al 2004). However, the use of wild edible plants is generally widespread among elderly people traditionally and in danger of vanishing in the future. In addition to this, natural vegetation is widely distributed due to anthropogenic factors mainly grazing, fire, urbanization, use of pesticides and herbicides etc. So that local and government authorities should be make effort to protect traditional folk medicine and biological diversity. Although there are many choices of vegetables sources, today many of them are neglected because of the preference towards uniform characteristic in modern agricultural technology and marketing (Yildirim et al, 2001).

TABLE 1. Wild Edible Plants Traditionally Consumed in Ordu and Samsun Cities.

Family	Species and Voucher Number	Local name	Parts Used	Method of Using
Boraginaceae	*Echium italicum* L. (Kutbay 3854 OMUB)	Engerek otu	Leaf	Meat and roasted
Boraginaceae	*Trachystemon orientalis* (L.) G. Don (Kutbay 3888 OMUB)	Kaldirik	Stem and petiole	Roasting with egg and pickle
Brassicaceae	*Capsella bursa-pastoris* (L.)Medik (Ozbucak 3880 OMUB)	Çoban çantasi	Above-ground	Raw and meal

Caprifoliaceae	*Sambucus nigra* L. (Kutbay 3884 OMUB)	Mürver	Fruit	Raw
Caryophyllaceae	*Silene vulgaris* (Moench) Garcke (Kutbay 3883 OMUB)	Gvirsik	Above-ground	Stew
Chenopodiaceae	*Chenopodium foliosum* (Moench) Aschers. (Ozbucak 3867 OMUB)	Kaz ayagi	Branch, leaf and fruit	Meal and raw
Cucurbitaceae	*Cucurbita pepo* L. (Kutbay 3879 OMUB)	Kabak	Stem, branch and flower	Meal and stuffed
Euphorbiaceae	*Euphorbia chamaesyce* L. (Akcin 3859 OMUB)	Sütlegen	Leaf	Soup and roasting
Ericaceae	*Vaccinium arctostaphylos* L. (Kutbay 3882 OMUB)	It üzümü	Leaf and fruit	Hot drink and raw
Fabaceae	*Trifolium pratense* L. (Kutbay 3881 OMUB)	Üçgül	Flower	Raw
Fabaceae	*Galega officinalis* L. (Ozbucak 3890 OMUB)	Keçi sakali	Above-ground	Stew
Fumariaceae	*Fumaria officinalis* L. (Ozbucak 3864 OMUB)	Sahtere	Leaf	Roastig, salad and pie
Geraniaceae	*Erodium cicitarium* L'Herit (Ozbucak 3887 OMUB)	Turnagagasi	Leaf	Roasting, meal and pie
Lamiaceae	*Mentha spicata* L. subsp. *spicata* (Ozbucak 3889 OMUB)	Nane	Leaf	Spice
Lamiaceae	*Mentha longifolia* (L.) Hudson (Kutbay 3885 OMUB)	Nane	Leaf	Spice
Lamiaceae	*Mentha aquatica* L. (Kutbay 3886 OMUB)	Su nanesi	Leaf	Spice
Lamiaceae	*Origanum acutidens* (Hand.-Mazz.) letswaart. (Akcin 3871 OMUB)	Mercanközk	Leaf	Spice
Lamiaceae	*Salvia verbenaca* L. (Kutbay 3873 OMUB)	Adaçayi	Above-ground	Hot drink
Lamiaceae	*Salvia verticillata* L. (Ozbucak 3862 OMUB)	Adaçayi	Above-ground	Hot drink
Lamiaceae	*Salvia viridis* L. (Kutbay	Adaçayi	Above-	Hot drink

	3877 OMUB)		ground	
Lamiaceae	*Stachys erecta* L. (Akcin 3866 OMUB)	Reyhan	Above-ground	Hot drink
Lamiaceae	*Thymus pseudopulegioides* Klokov& Des-Shost (Akcin 3870 OMUB)	Kekik	Leaf	Spice
Lamiaceae	*Satureja spicigera* (C. Koch) Boiss (Ozbucak 3863 OMUB)	Trabzon kekigi	Above-ground	Spice
Liliaceae	*Ornithogalum oligophyllum* E.D.Clarke (Ozbucak 3868 OMUB)	Tükürük otu	Stem and leaf	Roasting with egg
Liliaceae	*Ornithogalum platyphyllum* Boiss. (Ozbucak 3869 OMUB)	Tükürük otu	Stem and leaf	Roasting with egg
Liliaceae	*Ornithogalum sigmoideum* Freyn&Sint. (Kutbay 3855 OMUB)	Tükürük otu	Stem and leaf	Roasting with egg
Malvaceae	*Malva neglecta* Wallr. (Kutbay 3878 OMUB)	Ebegümeci	Stem, leaf and petiole	Meal
Malvaceae	*Malva slyvestris* L. (Ozbucak 3857 OMUB)	Ebegümeci	Stem, leaf and petiol	Meal
Orchidaceae	*Orchis coriophora* L. (Akcin 3872 OMUB)	Orkide	Bulb	Hot drink
Orchidaceae	*Orchis tridentata* Scop. (Akcin 3874 OMUB)	Orkide	Bulb	Hot drink
Orchidaceae	*Serapias vomeraceae* (Burm.fill.) Brig. (Ozbucak 3861 OMUB)	Orkide	Bulb	Hot drink
Oxalidaceae	*Oxalis acetosella* L. (Ozbucak 3875 OMUB)	Eksi yonca	Leaf and stem	Raw and salad
Plantaginaceae	*Plantago major* L. (Ozbucak 3876 OMUB)	Sinir otu	Leaf	Stuffed
Polygonaceae	*Polygonum cognatum* Meissn. (Ozbucak 3856 OMUB)	Çoban degnegi	Leaf, stem and petiole	Meal
Polygonaceae	*Rumex tuberosus* L. (Ozbucak 3858 OMUB)	Kuzu kulagi	Leaf	Meal and raw
Portulacaceae	*Portulaca oleraceae* L. (Ozbucak 3863 OMUB)	Semiz otu	Leaf and branch	Meal and salad
Primulaceae	*Anagallis arvensis* L. (Ozbucak 3865 OMUB)	Fare kulagi	Leaf	Meal

Urticaceae	*Urtica urens* L. (Ozbucak 3860 OMUB)	Isirgan	Leaf and branch	Meal, soup and roasting with egg

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